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HONORARY MEDICAL OFFICERS.

The Scheme of appointing Honorary Medical Officers to all District Headquarters and Government Hospitals in the mufassal was introduced in 1929 and several officers were appointed. The scheme has made considerable progress as many private medical practitioners with special attainments in the branches of medicine and surgery were appointed as Honorary Medical Officers in the City State Hospitals as well as in the mufassal. Special clinics such as dental, ophthalmic and venereal in charge of Honorary Medical Officers have been opened and are working satisfactorily.

The rules governing the appointment, etc., of Honorary Medical Officers were examined by the Special Committee appointed by Government and the recommendations of the Committee are under the consideration of Government. The number of Honorary Medical Officers working at the end of 1931 was:—

Honorary Surgeons and Physicians	....	15
Honorary Assistant Surgeons and Physicians	....	51
Honorary Sub-Assistant Surgeons	....	24

At the beginning of 1929 there were only 9 Honorary Medical Officers working in Government Hospitals and at the end of the triennium there were 90 and the number is still increasing. When the rapid expansion in the number of our patients in recent years is considered it will be understood that these numbers could not have been dealt with satisfactorily without the added assistance of our honorary staff, because our Government staff has not been increasing in proportion to the increase of our patients. It has been calculated that without our existing staff we should, to deal with the same amount of work, have to employ more medical staff at a cost of Rs. 1,85,000 per annum and the honorary staff may therefore be considered to be saving Government this amount annually.

One of the large City hospitals, Royapetta, is now staffed almost entirely by Honorary officers, having a skeleton staff of only three Government Medical Officers.

TRIENNIAL REPORT
(1929—1931.)

BULLETIN

OF THE

SOUTH INDIAN MEDICAL ASSOCIATION.

NOVEMBER 1932.

All-India Medical Council Bill.

The Government of India has been exerting itself to place this Bill on the statute-book as early as possible. The unanimous condemnation with which this Bill was received by the general public and the independent medical profession throughout the country raised hopes in the minds of some that the very objectionable features of the Bill would be dropped or mitigated to a great extent. But reports that one hears from some usually well informed people and the apparently inspired communications of some press correspondents are very disquieting. This monstrous hobgoblin has been dangling before the profession, but it looks as if the Government has made up its mind to compel the people and the profession to accept it as an honoured and permanent guest.

The idea of some such central legislation in the interests of medical education and practice, has been in the air for about a decade. But the suddenness with which the present Bill was introduced in the Assembly soon after the egregious action of the General Medical Council of England in withdrawing its recognition of the Indian University degrees made the public easily realize that the measure was conceived in panic and that it was drafted to the dictation of outside influence. The Government then protested that though the immediate provocation for the measure was the severe displeasure of the General Medical Council, its real and earnest purpose was to place medical education and practice in this country on the highest possible level. We are now told that public men and public bodies have not realized the fundamental facts of the Bill. We are plainly told that foreign display and not internal utility is the real aim of the Bill. It was for this very reason that several members of the Assembly and the general public refused even to look at this Bill. The question of licentiates is sought to be put off on the plea of financial deficiency. The Government assumes the role of a philanthropist whose great desire to help mankind is only tempered by the emptiness of his purse. And since it cannot do two things at a time, it prefers to beg at a stranger's door. It heaps insult on insult when it very patronizingly assures the licentiates that no reflection on them is involved.

The country and the profession are fed up with the existence of varying grades of medical men. This country has a very ancient medical tradition. And centuries back, some of the most highly cultured of her sages and seers devoted themselves to the science and practice of Medicine. The better educated members of the profession are therefore sad that the profession should be now practised by inferiorly trained men. The less fortunate and imperfectly trained members are indignant of the anamolous position to which they have been condemned. The graduates are unwilling to be flattered into ill-natured isolation, and the licentiates refuse to submit to any segregation. The profession as a whole is therefore insistent that these uunecessary distinctions should be forthwith eleminated and that foundations should be laid to build up a graceful

edifice of a unified, well educated and cultured medical profession. The Government has been made well aware of these conditions in the opinions expressed on the proposed Bill. It even acknowledges the existence of such conditions in an almost fatalistic vein, but refuses to raise its little finger towards the betterment of medical education and therefore of medical relief.

The public has not been taken up with the avowed objects of the Bill. The Government has therefore been compelled to state plainly the real purpose of the Bill and that is to pray for grace which has been recently denied. Contrite, on bended knees and with penitent hands the Government of India puts forward the peace offering in the shape of the All-India Medical Council Bill. The country has generally condemned this attitude, as an insult to its self-respect. The profession has violently disagreed with the proposal to perpetuate distinctions. The country and the profession are none the worse for the withdrawal of recognition, but the Government has set its heart on it and has its gaze fixed beyond Meccah. The bill should therefore be carried forward!

The constitution and function of the All-India Medical Council.

We have been taken to task by some of our readers for not having given our considered views on the composition and duties of the Council. The Union has decided views on certain aspects of the Council. It holds that all medical men who have been qualified from the recognized Medical schools of the country, graduates and licentiates, should be brought on one common register and should be served impartially by the Council. The Council should mainly concern itself with the maintenance of high standard of medical education and professional ethics in the country. It considers that recognition by other countries is secondary and should be strictly reciprocal. If these conditions are not unequivocally conceded, the creation of the new Council would be fatuous and even harmful to the best interests of the country. Of these three conditions the first two require no elaboration nor explanation. It is however necessary to state fully our views on recognition. In existing conditions the privilege of recognition is sought by a very small number of the medical men of this country. Those that are already settled down in practice in foreign countries and those that are already in the higher military service are not affected by the withdrawal of recognition. Judged by the past it has been calculated that not more than 10 or 15 graduates every year might be helped by this recognition. When we look at the objects of the Bill from this aspect it would be clear that medical education in this country should be guided by the present needs of the country and that we need not pay any particular attention to the recognition of our qulifications by other countries. We are not here propounding any original views. A casual acquaintance with what obtains in other countries, *e.g.*, America and Germany would easily bear this out. If any Indian medical man wishes to settle down to practise his profession in other countries it is only reasonable that he should take a little trouble to satisfy the requirements of those countries. It is worthwhile here to examine the quertion whether this desire to practise elsewhere is widespread and whether there is any demand for Indian medicals abroad and whether there is any need for medical men in this country to look for a career abroad. We are not aware of any great desire on the part of our men to settle down in other countries. Nor is there likely to be any demand for Indian Nationals abroad.

Service under governments or organisations is out of question since they would generally prefer their own men or men trained in their own institutions. Similarly for engaging in private practice, except in the British Kingdom and some of its small colonies there is hardly any scope for Indians. In the British Isles, on the population ratio there are far more medical men than in this country. The services of Indians are not likely to be requisitioned at any time. We are well aware that there is a very thin sprinkling of Indians practising in that country. But that there would be any general desire for a fair number of Indian doctors there is altogether absurd. And of the Indians that are settled down there in practice, those who have only Indian qualification are very very few indeed. Most of them possess British qualifications. And does the Country really need this reciprocity? If there be unanimity on any question, it is that for the vast population of this country, with its amazing toll of sickness and death, the number of medical men available is all too meagre. And this, including the large number of foreign qualified men in various services of the State, Missions and Plantations. With this chronic want of proper medical aid for the sick population of this country, to canvass for measures to facilitate the migration of medical men to other countries is rather inscrutable. Therefore to contend that the reciprocity which is desired by the Bill is in Indian interests is rather fanciful.

On the other hand it might be advanced that since the number of medical men in this country is admittedly inadequate, we should welcome medical men of other countries to settle down here. But if the Government would only make the necessary arrangements to • train the large number of applicants for medical schools and colleges, they would soon have an ever increasing number of our men to shoulder the task of medical relief.

People with international minds might here argue that since medicine and the privilege to heal is not of any particular country or continent, there should be no restrictions on medical men entering this country. The answer is obvious. It is not fair to expect India alone to be internationally minded, or even commonwealth in outlook while other countries are strictly national in action. Nor do we suggest here that foreign medical men should be prevented from coming to our country. But it is eminently reasonable to demand of those that desire to practise here that they should satisfy certain tests to ensure that they would be efficient and useful members of the profession in this country. The possession of the highest qualifications in one country does not always indicate that the medical men would be equally efficient in another country. Conditions under which medical relief has to be carried to the sick population of India differ greatly from what obtains elsewhere. The habits and customs vary. Languages vary. And above all, the diseases and the types of illness generally met with in this country are often very different from what one is familiar with in other lands. It is therefore essential that those who desire to practise in this country should have facilities for satisfying the duly constituted authorities here that they are fit to practise efficiently in the new environment. This consideration need not weigh in the case of medical men who are engaged in laboratory investigations, since men trained in recognized institutions in any country should feel at home in any country for similar work.

Reciprocity of recognition of the medical qualification of two countries

is not a matter of commercial bargain. It is not as if one country could say to another that she would recognize certain qualifications of the latter if in return she would be pleased to recognize some of the qualifications of the former. It is in essence an endeavour of each country to ensure that those who are allowed to practise in a country are reasonably efficient for the work. Judged from this standpoint clause 19, section 1 of the Bill is thoroughly indefensible. There is nothing to indicate that this recognition of British qualifications is even reciprocal It might be that the Government of India has come to some hitherto unpublished understanding with the General Medical Council of England for mutual compliments. But there is no provision in the Bill which would enable these holders of British qualifications to satisfy the authorities here as to their fitness for career in this land.

The proper procedure would be to do away with all reciprocal adjustments. Medical education in this country should be developed to satisfy fully the requirements here unmindful of recognition by other countries. The authorities should grow out of this haunting nightmare of unrecognition. India has nothing to lose if her medical qualifications are not recognized by others. Such of the foreign qualified doctors who desire to settle down here could take the trouble of satisfying the reasonable tests which may be applied before they are granted the privilege to prectise here.

We have dealt with this question of reciprocity at some length since we find that many eminet men of our profession as well as the general public have vague ideas on this question. It seems to be taken for granted that recognition of our qualification by others is very essential to the welfare of the profession and the country and on that score our public men are willing to concede much to others. We have endeavoured to show here that recognition is not essential, that other great countries get on very well without it and that this question interests only the Bri ish States. In fact, the British qualifications are not officially recognized by America or the continant, nor do the British suffer in prestige on that score. The Government of India might well learn its lesson from this last fact. In this article we have not said anything about the constitution of the Council. We do not attach much importance to this question. Anyhow, since our readers desire us to plece our views before them, we shall indicate in our next issue some of the principles which we consider should guide the constitution of a cultured and strictly businesslike body as the Medical Council.

Honorary Medical Officers.

The Government have appointed a committee of officials and non-officials to investigate the possibility of extending the scheme for the entertainment of honorary medical officers in State Hospitals in the Madras Presidency. The Committee will consist of the Surgeon-General (President), Lieut.-Col. F. C. Fraser, I.M.S., Rao Bahadur Dr. A. Lakshmanaswamy Moodelliar, Miss A. B. Hardy, Dr. K. C. Paul, Dr. B. Bujanga Rao, and Dewan Bahadur R. N. Arogyaswamy Moodelliar, M.L.C.

GENERAL NOTES.

We are sure that the profession would welcome the appointment of the Committee to explore the possibilities of for the extension of the *honorary scheme.* The latest triennial report of the Surgeon-General with the Government of Madras refers in more than place to

the success and great usefulness of this scheme to the Government and the public. We are therefore confident that the present Committee will suggest various means by which the Government and the country could profit more extensively by availing themselves of the services of a larger number of practitioners.

* * *

The triennial report on the working of the hospitals and dispensaries for the last triennium is a very useful document. We regret we are unable to review the report for this issue of the Bulletin. We hope to give its salient features in our next.

* * *

We congratulate the licentiates of the school of Indian Medicine on the partial success they have achieved as regards the privilege of granting Medical certificates to their patients who may be Government servants.

While the Licentiates of Indian Medicine who are in Government employ are permitted to certify about the health of their patients, such of those who are not in Government service are denied this privilege. We do not see how the Government seeks to justify this invidious distinction. If the Licentiates of Indian Medicine could be depended on to treat the sick and if he could be trusted to advise as to the fitness or otherwise of a person to attend office, etc., it should make no difference whether the practitioner is in Government service, local board service or in independent practice. Or is it the intention of the Government that its servants should boycott the independent practitioners, and that they should only seek the aid of practitioners who are in Government employ ?

UNION NOTES.

The Governing Body of the Union met on the 14th instant and transacted the usual business.

At the clinical meeting on the 21st instant Dr. C. Ranganatham, M.B , B.S , B S Sc., read a very interesting paper entitled " Proprietary foods and their abuse." He dealt at length on the composition and the calorific value of the various popular milk powders and malted milk preparations and came to the conclusion that none of these can approach the breast milk of the mother.

Most of the members present took part in the discussion.

Dr. K. R. C. Hebbar wished to know how malt was prepared and if it was necessary to add it to the milk foods.

Dr. P. Natesan enquired if we cannot by legislation prevent the marketting of these various milk preperations.

Dr. C. R. Krishnaswami doubted if after all the use of these milk foods entailed any extra cost to the family seeing that the milk supply in the city is bad, and the keeping powers of the cow's milk in the climatic conditions of a place like Madras is poor and that milk is easily available for a child who wakes up in the night for a feed.

Dr. T. Satakopan congratulated the Lecturer on the very interesting paper and the valuable information it supplied. He very much deplored the growing fashion amongst mothers of feeding the babies on these proprietary milk preperations and forcibly impressed on his medical colleagues present that they were in a measure to blame for not carrying out an educative propaganda amongst their clientale that the best food for a growing baby is the mother's milk. He agreed with the previous speaker that legislation on the matters

is unnecessary and the adequate weapon to deal with this evil is in their own hands. He was of opinion that these proprietary preparations are of some use to invalids and convalescents.

Dr. V. D. Nimbkar who was in the chair deplored the financial drain in the country by patronizing these proprietary articles and suggested that the baby week and health organizations should forcibly bring to the notice of the mother the great superiority of their own milk over the proprietary articles.

The lecturer replied to some of these questions that were raised and proved by calculation that the cost of bringing up an infant on Gloxo is nearly double that of the necessary amount of cow's milk needed for the same infant.

With a vote of thanks to the chairman and lecturer the meeting came to a close.

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BULLETIN

OF THE

SOUTH INDIAN MEDICAL ASSOCIATION.

NOVEMBER 1932.

Proprietary Foods and their abuse.*

BY DR. C. RANGANATHAN,

M.B., B.S., B.S.SC.

From the very earliest times the attention of man has been actively engaged in devising methods of food preservation, drying, smoking and curing with salts being among the chief methods utilized by him for preserving foods. For instance, milk was preserved in the form of butter and cheese, and flesh and fruits by drying or curing them with salts.

In recent times the problem of food supply to the world has become very acute owing to the rapid increase of population, the migration of man to the different parts of the globe, and the rapid growth of towns as the result of industrial developments.

The methods of food preservation, which had been mostly empirical hitherto and the methods of transport of food were tackled with great energy and vigour on a rational basis by the scientists, as a result of whose laborious researches we find it possible to-day to transport foods from one end of the globe to the other in nearly as fresh a state as possible. As regards milk preservation and transport considerable difficulty was experienced on account of the bulky nature and poor keeping qualities of this fluid. Then, a necessity arose for improving this aspect of trade and the industrial chemists set to work with the result a condensed milk was produced which was not only less bulky but possessed better keeping qualities than fresh milk. The success of this preparation led to further researches in the direction of reducing the bulk still further and in the year 1855 Grimwade in England prepared a milk powder for the first time. In subsequent years the dried milk became an article of commerce. A malted milk was offered for sale in 1887.

Ever since the first production of dried milk, various inventions and processes have been patented with the result that we find the markets of to-day are flooded with countless varieties of foods which have been variously designated as Infants' Foods, Food Specialities, Invalid Foods, Concentrated Foods, and Patent or Proprietary Foods.

Bewilderingly innumerable as these patent foods are, yet they admit of a very simple classification. They are divided into two main groups according as they are composed of (1) milk, or milk and cereals the carbohydrates of which are in different degrees of solubility and (2) cereals only in which the carbohydrates are entirely soluble or partially soluble or totally insoluble.

To the first group of foods belong

1. Condensed milks. 2. Dried milks. 3. Dried milk with complelety malted cereal. 4. Dried milk with cereal, the starch of which is partially altered.

And the second group consists of

1. Cereals the starch of which has been completely altered. 2. Cereals in which the starch has been rendered partially soluble. 3. Cereals, consisting of unaltered starch only.

The Condensed milks.—These preparations are sold in the market either as full-cream sweetened and unsweetened condensed milk or sweet-

* Paper read before the South Indian Medical Union, 21st November 1932.

ened skimmed condensed milk. The sweetened full-cream variety is prepared by pasteurising whole milk which is subsequently concentrated in vacuum pans so that one part of this represents about two and half parts of original milk. Approximately seven ounces of cane-sugar are added to a pint. The unsweetened full-cream variety is made in the same way as the above without the addition of cane-sugar. It is sometimes called " evaporated " milk. In the preparation of sweetened skimmed condensed milk, skimmed milk only is used.

As examples of the full-cream sweetened variety may be mentioned, the Nestle's, the Milkmaid, and the Anglo-Swiss; the Ideal, Carnation, Libby's, etc., represent the full-cream unsweetened brands; the Moonraker and the Blue-butterfly belong to the sweetened skimmed class.

A reference to Table I reveals the following facts (1) That Nestle's milk or any of the A class variety contains a large percentage of sugar and the other constituents are in the same proportion as in the original milk. (2) In the Ideal or those of its group milk solids are in the same proportion as in the original milk. (3) The C class are very much deficient in fats and contain an excess of sugar.

In Table I the composition of some of the better known condensed milks is given.

TABLE I.

Class.	Name of milk.	Calorific value per 1 oz. of food.	Fats %.	Protein %.	Carbohydrates %.	Water.
A Full-cream sweentened.	Nestle's ...	102	10·2	9·4	53	25·3
	Diploma ...	101	9·6	8·4	54·62	25·5
	Berna ...	103	10·5	9·5	53	25·0
	Tip top ...	98	9·5	8·54	52·86	26·9
B Full-cream unsweetened.	Ideal ...	51	9·5	8·84	12·21	67·5
	Carnation ...	48	9 2	8·60	11·1	69·4
	Libby's ...	50	9·2	9·6	11·5	68·0
	Regal ...	50	9·6	8·32	12·02	68·2
	Berna ...	49	9 5	9·5	10·0	69·0
	Everyday ...	50	9·1	8·85	12·20	67·9
C Sweentened skimmed.	Pet-milk ...	42	8·0	7·6	9·7	73·4
	Moonraker ...	84	0·55	9·76	59·84	27 6
	Blue-butterfly ...	84	0 40	10·0	58·8	28·8

(Modified from tables given in Donald Paterson's " Sick Children : Diagnosis and Treatment ").

The dried milks.—These are prepared from either whole milk or skimmed milk by abstracting the elements of water leaving behind the milk solids. Among the many processes employed in the preparation, only two are prominent. In one process the milk is rapidly dried on rollers heated by

water or steam and in the other it is sprayed into a chamber along with a current of hot dry air. Various brands of dried milk have been classified according to the percentage of fat present in them. The most popular among the full cream variety are the Glaxo, the Lactogen and the Cow and Gate.

An idea of the composition of the many brands of full-cream, half-cream and skimmed dried milks can be obtained from a perusal of Table II given below. The A class of dried milks, *e.g.*, glaxo contains milk solids in the same proportion as the original milk perhaps with this difference that in some cases a little of lactose has been added. Those of the B class are deficient in fats as compared with the A class of foods and the proteins are a little in excess. There is present also some added lactose. The C class is very deficient in fats and the proteins and carbohydrates are in larger percentage than in either A or B class of foods.

The composition of some of the well-known brands of dried milks:

TABLE II.

Class.	Name of dried milk.	Calorific value per 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Water %
A Full cream.	Glaxo ...	147	25·5	22·9	42·5	2·4
	Lactogen ...	147	24·5	23·7	43·6	3·0
	Trufood ...	149	26·0	24·02	41·9	1·97
	Dorsella ...	151	27·1	22·3	42·3	2·2
	Neaves Milk ...	151	26·0	20·0	47·1	2·4
	Cow and Gate ...	151	27·3	26·6	37·3	2·5
	Lacta ...	146	26·05	26·25	37·0	3·6
	Milkal ...	155	29·0	26·05	37·64	1·5
	Ambrosia ...	156	29·3	28·7	35·2	1·6
	Klein ...	154	28·2	26·7	37·9	1·5
B Half-cream.	Glaxo ...	135	16·5	31·5	43·5	2·0
	Trumilk ...	130	13·86	32·0	45·1	1·85
C Skimmed.	Cow and Gate ...	108	0·8	35·2	52·8	3·3
	Trufood ...	105	1·0	36·0	49·0	4·0
	Klein ...	109	1·4	37·7	49·9	2·8

(Modified from Donald Paterson's).

There is yet another class of dried milk foods called the humanized dried milks which are so prepared that one teaspoonful of the food added to an ounce of water reconstitutes one ounce of breast milk. The composition of some of the common humanized dried milks is given below Table III:—

TABLE III.

Name of dried milk.	Calorific value per 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Water %
Humanized-Trufood ...	155	28·9	11·8	52·3	1·4
Humanized Ambrosia ...	153	27·0	12·0	57·0	2·0
New Glaxo ...	141	20·0	17·0	56·0	2·0
S. M. B. ...	156	28·0	9·0	58·0	1·3
Bernia Food No. I ...	135	15·77	20·35	56·92	3·04
Bernia Food No. II ...	153	27·0	12·5	54·60	3·30

(Modified from Donald Paterson.)

These foods are modified cow's milk. The proteins are present in the same quantity as in breast milk. The fats have not been disturbed while the carbohydrate in the form of lactose has been added to make up this deficiency in cow's milk. The Humanized Trufood closely resembles breast milk in both the percentage and proportion of the different constituents on reconstitution. In the following Table IV the composition of Humanized Trufood and Glaxo on reconstitution according to instructions and of cow's milk and breast milk are available for a comparative study.

TABLE IV.

	Humanized Trufood.	Glaxo.	Cow's milk.	Breast milk.
Fats	3·45	3·25	3·50	3·30
Lactose	6·25	3·25	4·70	6·50
Casein	0·80	} 2·70 {	3·00	0·90
Lactalbumen	0·60		0·30	0·40
Milk salts	0·65	0·70	0·80	0·20
Water	88·25	88·10	87·70	88·70

(From J. Allen's Commercial Analysis, Vol. IX.)

In both Humanized Trufood and Breast milk the proportions of casein and lactalbumen are strikingly similar. The percentage of lactose is about the same while that of fat is a little in excess. In Glaxo and cow's milk, with the exception of fat, the other constitutions vary in percentage. In both, the proteins are in excess though to a small extent in Glaxo over breast milk. Cow's milk is poorest in lactose while Glaxo has a little lactose added to it. Yet both are deficient in lactose as compared with either Trufood or breast milk. In all excepting breast milk the salts are highly in excess.

The class of milk foods containing cereals which have been rendered completely soluble, is prepared from milk and a completely malted cereal. The soluble substances are chiefly of the nature of a mixture of dextrins, dextrose and maltose, *e.g.*, Allenbury's I and II and Horlick's malted milk. There are yet others in which the cereals are present either partially or wholly converted into soluble substances. Those containing partially altered starch are prepared from the sweetened condensed milks evaporated to dryness with the addition of wheat flour or some other similar material which has been partially changed. These foods contain a large percentage of unaltered starch. The Nestle's milk food and the Glaxo malted food belong to this class.

TABLE V.

Name of Food.	Calorific value per 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Remarks.
Allenbury's I ...	136	18·5	9·7	62·3	Excess of casein removed dried milk and malt, no starch.
Allenbury's II ...	139	17·6	9·2	66·8	Dried malt & milk, no starch.
Horlick's malted milk...	124	8·03	13·9	71·59	Desiccated milk & malt extract, no starch.
Nestle's milk food ...	126	6·15	14·5	77·2	Mixture of desiccated swiss milk, baked wheat flour & converted 77 % unaltered starch 18 %
Glaxo malted milk ...	117	2·1	11·3	81·6	Dried milk & partly malted wheat flour & barley.
Milo Food ...	123	5·2	14·0	75·3	Desiccated milk baked flour, converted 30 %

(From J. Allen, Donald Paterson and Hutchinson.)

The preparation of foods from cereals which have been wholly or partially converted into soluble substances or in which the starch is present only as such are very many. Those that contain wholly soluble substances are nothing but desiccated malt extracts. In some foods, a ferment is present (pancreatic extract or diastase) which converts the starches into soluble substances during the process of preparing food.

Mellin's food is a completely malted food, all the carbohydrates being in a soluble form. It may be regarded as a desiccated malt. Allenbury's

malted food No. 3 is amixture of wheat flour and malt. When prepared according to directions it still contains same unaltered starch. Benger's food is a mixture of wheat flour and pancreatic extract. Most of the starch is converted, also the proteins of the cereal and of milk are also partially digested in preparing the food. Savory and Moore's food is composed of wheat flour, malt and diastase When preparing food most of the starch is converted.

Among the purely cereal preparations may be mentioned Neave's cereal food which certains entirely unaltered starch; Ridges food consisting of a baked flour in which 3% are soluble carbohydrates, the rest being starch; Robinson's Patent Barley an unaltered cereal preparation made from ground pearl barley, Robinson's patent groats being ground oats from which the husk has been removed and is rich in proteins and mineral matter; Chapman's whole wheat flour, a finely ground whole meal flour, just like ordinary household flour; the cream of Rice (Groults') the cream of wheat made from granulated endosperms and arrow root obtained from the starchy root of a West Indian plant called Maranta *arundinalla.*

TABLE VI.

The Composition of some of the cereal preparations.

Name of Food.	Calorific value of 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Remarks.
Mellin's Food ...	115	0·16	10·3	79·5	Completely malted food.
Allenburys No. III ...	113	1·0	9·2	82·8	A mixture of wheat flour and malt contains some unaltered starch.
Benger's Food ...	110	1·2	10·2	79·5	Mixture of wheat flour and pancreatic extract contains some unaltered starch.
Savory and Moore's Food.	115	1·4	10·3	83·5	Mixture of wheat flour malt and diastase contains some unaltered starch.
Arrow Root ...	100	Trace.	8	82·5	Starch unaltered.
Chapman's Whole Wheat Flour.	112	2·0	9·4	79·3	Unaltered starch.
Groult Cream of Rice.	105	0·3	6·9	80·0	Starch unaltered.
Cream of Wheat ...	108	2 40	11·8	72·46	Ditto.
Neaves' Cereal Food ...	115	0·97	13·04	80·84	Ditto.
Ridge's Food ...	111	1·0	9·2	81·2	Contains 3% soluble carbohydrates.
Robinson's Patent Barley.	106	0·9	5·0	82·0	Poor in everything except starch.
Robinson's Patent Groats.	110	1·6	11·3	75·0	Rich in proteins.

(From Donald Paterson).

Some patent foods such as Ovaltine Glaxcovo contain egg yoke and other nutritive bodies. Ovaltine is a mixture of milk, malt extract and eggs flavoured with cocoa. It is rendered readily soluble and does not contain starch fibre or husks of grain. The Glaxcovo is prepared from milk, malt extract, eggs flavoured with chocolate and contains added Vitamin D. Their composition is as follows :—

TABLE VII.

Name of Food.	Calorific value of 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Remarks.
Ovaltine ...	120	8·01	14·2	67·9	Milk, eggs, malt extract cocoa.
Glaxcovo ...	133	13·3	18·3	62·2	Milk, eggs, malt extract and Vitamin D.

(From Paterson and Allen).

Certain Patent Food, contain milk proteins only and their composition is given below :—

TABLE VIII.

Name of Food.	Calorific value of 1 oz. of food.	Fats %	Proteins %	Carbo-hydrates %	Remarks.
Lactarine ...	107	0·4	78	7 8	Fine powder soluble in water.
Galactogen ...	97	4·0	70	...	Contains 2% Phosphoric acid.
Sanogen ...	95	...	77	...	Contains 5% of sodium glycerophosphate.
Sanatogen ...	98	...	80	...	Soluble white powder contains 5% sodium glyceroposphates.
Plasmon ...	104	...	80	5	Yellowish white powder. Contains 5% glycerophosphate.

(From Allen's Commercial Analysis, Vol. IX modified.)

The great popularity of patent foods in this country may be said to be due to the following constituting factors.

(1) Medical men inspite of presumably greater knowledge of dietetics and infant nutrition have been known to recommend patent foods with a view to please their patients. If more than ordinary interest has been displayed by them the present state of affairs would not have been possible.

(2) The skilful advertisement of the men of commerce have caught hold of the ignorant public. For instance a certain manufacturer points out that cow's milk compares unfavourably with breast milk as the former contains a less percentage of lactose than the latter and that the deficiency has been made good in his preparation. Some maintain that the proteins of cow's milk are difficultly digested by infants because of the massive curdling of its proteins in the stomach. Similarly the fats have been accused of being digested with great difficulty owing to the size of fat globules. They say that these difficulties have been overcome in the preparation of their brands of infant's foods.

(3) The result is, the layman who is really ignorant of the relative merits of food choices, is victimized. The ignorant parent in his anxiety to find out a good substitute for breast feeding, chooses at random some patent food whose alleged qualities he has read in the various advertising media or is inclined to follow implicitly the suggestion of his neighbour or friend who has vouchsafed excellent results on feeding his children with a particular infant food. When this food is found to disagree another food is tried and so on until various foods have been tried indiscriminately with inevitable results.

" But the mischief does not end here for the lay public, seeing that Doctor so and so ordered somebody's Patent food with good result, conclude that what suits one infant must suit another and even if that particular food does not suit, somebody elses' Infant Food may be equally tried and knowing nothing about the particular properties of particular foods and conditions under which a particular patent food or condensed milk may sometimes be advantageous, they use these various food." (G. F. Still).

In some houses, it has become a fashion, nay even a pride to rear children on patent foods. Thus we have Glaxo babies, Lactogen babies, but we never hear a word of praise for the breast fed baby.

(4) The decline in breast-feeding is attributed to various factors of which the effect of modern civilization has had the largest share. Not only there is this exhibition of disinclination on the part of the mother, the doctor who is very often consulted in the matter of choice of food for the baby, has perhaps constituted his share in recommending this patent food or that without any hesitation. He ought to have weighed the *pros* and *cons* and studied each case independently before deciding upon a proper course of action. Instead of finding out whether the failure in the breast is real or apparent and whether the milk can be re-established with a little effort and perseverance, he has been rather quick in suggesting some patent substitute. It appears as though, the mother, the doctor and the patent stuff manufacturer have conspired together, to deny what is legitimately and morally the brith right of the infant, namely, the breast milk.

(5) The unsatisfactory nature of milk supply in our country has been attributed as one of the causes for the increasing use of patent foods.

(6) The unpopularity of cow's milk as diet for infant has been said to be due to the general opinion that its use has been the cause of infantile cirrhosis. Especially the milk of cows fed on cotton seeds is alleged to cause cirrhosis in children.

Certain general principles have been enunciated by eminent pediatricians regarding the artificial method of feeding. They consider that no food has yet been found so suitable for the young infants as mother's milk. The extraordinary digestability of breast milk compensates for all sorts of irregularities in infant feeding. Besides the above qualities, the marvellous purity of milk supply, the presence of firm muscle tone in every breast-fed baby and the protection afforded against various infections are mentioned as some of the important features. In any method of artificial feeding the different constituents of food, namely, proteins, fats, carbohydrates, salts, vitamins and water are to be supplied; they must be adequate enough to meet the physiological needs of the infant for growth, repair and energy. Variations wide of the mark are capable of harmful results. The various constituents of the food should exist in suitable proportions and the proportions best suited to an infant are amply illustrated in the composition of breast milk. Consequently in any artificial diet, the percentage and proportions of the different constituents should not oscillate too much from the optimum, also the quality of the different constituents must be such that they are easily digestible.

It has been observed that even young infants tolerate well a diet consisting of an excess of proteins and no harm has been observed to result therefrom. Whereas a diet very much deficient in proteins has led to disastrous results, as the slowing or retardation of growth, feeble muscular power, anæmia and various functional nervous disturbances. As regards fat, an excess of this substance leads to the loss of mineral matter especially calcium and magnesium which are passed as insoluable magnesium and calcium soaps in the stools and consequently upset the balance of mineral salts in the system. If in addition to this, there is an excess of carbohydrates also in the form of sugar, the fats are decomposed into fatty acids setting up fermentative diarrhoea by which process there may result considerable loss of potassium and sodium also. According to Ellis and Macleod that "dietaries which are deficient in vitamines and proteins and at the same time excessively rich in starch or fat or both are potent sources of disease and especially gastro-intestinal disease. An excess of fat, in association with a deficiency of B. Vitamin and protein and super-abundance of starch is peculiarly harmful. Under such circumstances the invasion of the blood and tissue by bacteria is greatly favoured." A diet too low in fats is said to lead to the development of rickets and dental caries as they are important sources of Vitamines A and D.

Excessive carbohydrates in the diet leads to rapid gain in weight due to deposition of fat, though not in strength and also it is said that the diet under these conditions must have more than the normal amount of anti-rachitic factor to prevent the development of rickets. "The gastric, intestinal, pancreatic and biliary insufficiency are according to McCarison the important consequences of a diet too rich in starch and poor too in vitamines and other essential constituents of the diet.' In view of the general principles already enunciated, let us examine how far the patent foods are suitable as diets for infants and children. In the sweetened varieties of condensed milks there is present a large percentage of sugar, and in the skimmed milk fats are also deficient.

For these reasons they are considered unsuitable as permanent food. Moreover the necessary vitamines are completely absent in these preparations. The malted milks contain excess of sugar and are deficient in fats. In some there is present also some unaltered starch. The accessory food factors are said to be diminished especially Vitamin C. Their use as continuous diet is vehemently opposed by all authorities. They ought never to be used for infants under seven months of age. There exists a great deal of liability for the development of rickets and scurvy. All the cereal foods whether malted completely or otherwise, contain only carbohydrates with a low percentage of proteins and fats. Moreover the latter have a very low biological value. In the process of refinement all the vitamines are destroyed or eschewed especially the water soluble B factor. Consequently these foods are never recommended to be used alone as the tendency for the development of deficiency diseases is greater. According to Dr. Coutts the so-called malted milks have in recent years been recommended for baby feeding. These like sweetened condensed milk contain too low a proportion of fat as compared with the amount of sugar.........The ordinary patent infants' foods containing large quantities of unaltered starch, are worse than sweetened condensed milk or malted milk. They are unfit for a baby under seven months of age."

As regards desiccated milks the views of eminent authorities have been rather conflicting while one school of thought especially in France and Belgium believes that dried milk is superior to sterilized cow's milk or even humanized milk, there are others who consider its utility as a temporary diet only. Dr. Coutts says "that in some cases increased experience has led to greater confidence in its utility as a continuous diet when breast feeding is *impossible*."

The advantages claimed for the use of dried milks are that they are practically sterile, their nutritive value is unimpaired, the proteins and fats are altered, the casein in the former being divided into small portions, and the fat globules in latter being reduced in size in the process of manufacture thereby rendering digestion easier. It is said that there is a possible diminution in the biological factor and the experience of many clinicians has been that infants fed for long periods on dried milk are inferior in skin and muscle tone and vigour to those fed on modified raw milk. As there is an increasing tendency to regard these dried milks as substitutes for breast milk, and as there is a liklihood of mistaking starch Patent Foods as being in the same class as the various brands of dried milks, the pediatricians urge that the mothers should be well educated on these points that they are never intended to replace breast milk and that these foods are entirely different from starchy patent foods. The so-called keeping qualities of dried milk have been exploded as a result of prolonged and intense examinations. The most striking evidence of deterioration is the development of peculiar flavour known in the trade as "tallowness" and this has been attributed to an oxidative process due to the presence of small quantities of Oxygen. Once the process is established the auto-oxidation proceeds rapidly in any dried milk. Certain changes have been observed on keeping these powders for a long time. It is said that the solubility is sometimes profoundly affected and there is development of rancidity. These changes have been in some instances attributed to the presence of bacteria.

The results of the indiscriminate use of patent foods can be summarised as follows ;—

(*a*) Effects on the infant.

(1) A tendency for all kinds of digestive troubles, which may lead to impaired digestion througout life.

(2) Proneness to rickets and scurvy.

(3) Death of the child during its first year from diarrhœa.

(4) A diminished resistance to infectious discases.

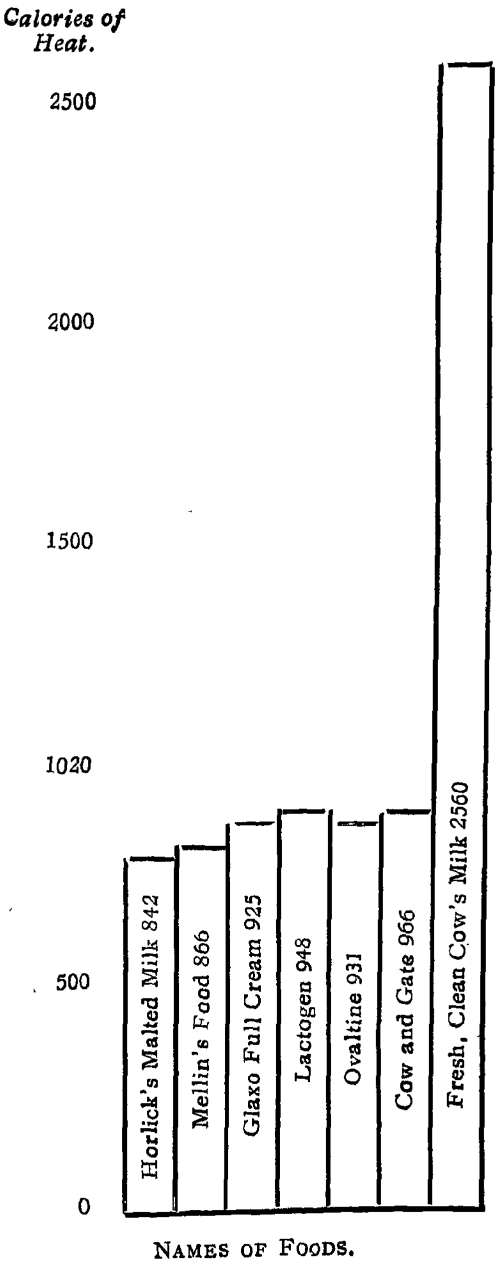
(5) Both the temporary and permanent teeth are affected with results lasting for life.

(*b*) On the family.

Straitened financial resources consequent upon the heavy expenses involved in rearing infants on patent stuffs. Money is not available for obtaining the necessaries of life for other members. The health of the family deteriorates. The children yet unborn will be profoundly affected owing to the feeble state of health of the mother. They start life with a severe handicap.

Economics of Infant Feeding.—It is a very well known fact that the cheapest, safest and best form of infant rearing is breast feeding. All other methods are to be regarded as costlier in varying degrees. Feeding by wet nurse is indeed very costly owing to the difficulty in procuring one and consequently the demand for an exhorbitant sum. Where pure milk of good quality is available, it has been universally acclaimed as the cheapest and best of all methods of artificial feeding. " All proprietary forms of milk " according to James Kerr " are dearer than the fresh milk and so called infants' foods, which have milk as the basis may be included as expensive."

Diagram showing the calorific value of one rupee worth of Patent Foods and Cow's milk.



In the above diagram I have made graphical representation of the energy value of the various patent foods and cow's milk obtainable for one rupee worth of money. It will be evident that for the same price cow's milk gives approximately 2560 calories, while the others, namely, Horlick's Malted Milk, Mellin's Food, Glaxo, Lactogen, Ovaltine, Cow and Gate

yield 842, 866, 925, 948, 931 and 966 calories respectively. Similarly the costliness of other proprietary forms of food can be proved. " Sanatogen stated as about 95 per cent dried milk case in with added glycerophosphates, has according to a poster of the American Medical Association about a tenth of the food energy of the fresh milk which could be purchased for the same money." An idea of the cheapness of cow's milk as compared with Glaxo, Cow and Gate or Lactogen can be had from the following data.

The calorific value of one ounce of cow's milk is 20 and the average calorific value of the above foods for one ounce is 150. An infant during the first three months of life requires between 45-50 calories of heat for every pound of its body weight and during the last quarter between 30-35 calories per pound of body weight. A child weighing 8 lbs. during any day in the first three months requires 8 × 50 calories of heat of food energy for maintaining its normal functions on that day. Calculated according to food requirements for yielding 400 calories of heat we requires 20 ounces of cow's milk, or $2\frac{2}{3}$ ounces of dried milk. The price of 20 ounces of milk at the current rate is Rs. 0-2-6 and that of Glaxo,Cow and Gateor Lactogen whose average price at local current rates to Rs. 2-8-0 per lb. is 0-5-10. The difference is a saving of Rs. 0-3-4 on that day.

Calculating on the above basis, the cost of rearing a child on cow's milk during the first three months is about Rs. 14 and that of any dried milk above mentioned is about Rs. 40. The difference will be greater as the child grows older owing to larger intake of food.

It therefore stands to reason that cow's milk is the cheapest form of food and the money spent in buying the so-called concentrated foods can very well be utilized in supplying the whole family with fresh cow's milk. Even otherwise, there is likely to be a considerable saving which means that there is money available for purchasing other necessaries of life.

" Milk is probably the most perfect single food in use to-day, containing as it does water to slake thirst, ash to make bone, protein to make flesh and muscle, fat and sugar to keep body warm and to furnish energy and vitamines to protect health. It is Nature's first food for mammals and is cheaper than meat at current prices. The great economy in production of milk as compared with meat and the growing recognition of its food value, is leading to its increasing consumption. The task of supply to our great cities with milk and other diary products is one of the major problems in modern industrial life."

The consideration of the cheapness and nutritive value of cow's milk as an important article of diet for infants and growing children leads to the question whether the present milk supply is adequate or not in our towns, whether the quality of milk supplied conforms to the usually accepted standards and whether there are any remedies for improving the existing state of affairs. " Col. McCarison says that the great neutritional need of India at the present time is the production of more and of purer milk." The quality of milk available now-a-days is far from satisfactory. If we believe that cow's milk is really a good substitute for breast milk and is vastly cheaper than other forms of artificial feeding, a great burden rests on us in educating the public on this aspect of reform. If the public opinion is stimulated in the direction of devising methods for obtaining pure milk of good quality our contribution to the welfare of humanity

at large is worth the praise. The ways and means of effecting the milk supply reform not strictly forming part of the present lecture, shall be the occasion of another article.

Conclusion.—Having proved at great length that patent foods are unnecessary whether they be foreign or locally manufactured, our object must be to encourage breast feeding in every case. One of the most effective methods of lowering the infantile mortality, apart from other reforms, is the inducement of every mother to nurse her infant. It is stated that during the siege of Paris the infantile mortality rate was lowest in the town, as all mothers had no other alternative but to nurse their infants. During the great war, when the milk supply was rationed in Germany there was a great deal of protest that the Government were out to murder the infants and children by cutting off milk supply. But the results were contrary to what was expected by the public, namely, the infantile mortality rate was reduced as the direct result of breast feeding which most mothers had been forced to adopt. A great burden rests on us of the medical profession to give prominence to this aspect of reform. All maternity and child welfare organisations and Health weeks, must make it their duty to impress on the public on the importance of breast feeding. Education of the public on the subject of milk is considered next in importance in this campaign. I would suggest that the prominence that is being given in some of these exhibitions to patent foods, be relegated to one of secondary importance.

In the meanwhile vigorous attempt should be made in the direction of improving milk supply. Here in India we are concerned with an adequate supply of milk of good quality only and as regards contamination though it is our desire to have as little of this as possible, no harm has been evident as all the milk consumed in our country is consumed only after boiling thereby eliminating the danger of the spread of infectious deseases. If the milk supply as it at present exists is considered inadequate, it will be a wise suggestion to conserve the existing quantity by utilizing it only for the child population the adults denying themselves of this article of diet in their tea and coffee Some one may argue that the price of milk will rise consequent upon the improvements effected. While we are willing to waste some crores of rupees in buying patent stuffs, will it not be considered sane nay ecnomical to put up with a slight rise in the price of milk. Even at the price one has to pay after all the improvements have been made there is bound to be at least a clear margin of profits for the consumer provided he ceases to buy the patent foods. For the price one has to pay for the patent *foods*, I believe, he can adequately nourish his *whole family* with pure and good milk always available at his doors.

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Food. By Robert McCarison.

ASSOCIATION NOTES.

The 25th All India Medical Licentiates' Conference, Madras.

BULLETIN No. 1.

As the correct addresses of all the Medical Licentiates in the Madras Presidency is not available the Reception Committee is very much handicapped in addressing individual Licentiates in time and hence the Executive Committee has made use of the hospitality of Medical Journals and lay press to keep them in touch with the activities concerning the ensuing Conference.

The function being an All-India one, it is expected that the Reception Committee will have to meet a large expenditure for the lodging and boarding of guests who will attend the Conference in large numbers from all parts of India including Burma.

The Executive Committee therefore makes an earnest appeal to the Licentiates in the Madras Presidency to help and co-operate with us in making the Conference a success.

In addition to the consideration of subjects concerning the Licentiates such as, The Indian Medical Council Bill, Medical Education, Rural Medical Relief Scheme, Honorary System of Medical Relief, their grievances in service, etc., etc., there will be discourses and discussions on scientific subjects and an exhibition of goods and appliances, both foreign and indigenous, interesting to the profession. Practitioners who wish to read papers are requested to send them (preferably type-written on one side of paper or written legibly) to the Secretary, Scientific Section, 323, Thambu Chetty Street, George Town, Madras. so as to reach him before the end of November, noting their full names and addresses.

Fees:

For membership of the Reception Committee, Rs. 5 or more.

For guests with arrangement for lodging and boarding, Rs. 3.

For guests without arrangement for lodging and boarding, Re. 1.

N.B.—The Practitioners both in the city and mofussil are earnestly requested to send their contribution towards the funds of the Conference. To facilitate the collection of funds the Executive Committee have passed the following resolution:—

"Resolved that the Provincial Secretary, Dr. D. V. Venkappa, be requested to do propaganda in the mofussil with regard to the collection of funds for the ensuing Conference and the Publicity and General Secretary Dr. V. Rama Kamath be authorised to make a similar request to the mofussil

Licentiates through the press and Medical Journals to do similar propaganda work, and the actual travelling allowance of all such works be defrayed from the Conference Funds."

Indian Medical Association.

HEAD OFFICE :
67, Dharmatala Street,
CALCUTTA,
21st October 1932.

DEAR SIR,

I have pleasure in informing you that the invitation of the Lucknow Medical Association to hold the next IX All India Medical Conference has been accepted and the Conference will be held at Lucknow during the Christmas week, the exact dates of the Conference will be announced later on. I have been authorised to extend the invitation on behalf of the Reception Committee formed at Lucknow to all the members of your Association and also through you to all medical practitioners in your parts. Rai Bahadur Dr. B. N. Vyas of Lucknow has been elected Chairman of the Reception Committee. Major M. G. Naidu has beed nominated President of the Association for the ensuing year.

In order to make the Conference at Lucknow thoroughly representative of the medical profession of India, as in the case of the previous Conferences, it is necessary that the co-operation of the members of the various Associations should be freely given to our Lucknow colleagues in the successful organisation of the Conference. As on previous occasions this Conference will consider many important problems affecting the vital interests of the medical profession of India and notably the *Indian Medical Council Bill.*

There will also be a *Scientific Section* where scientific papers and discussion on interesting case notes will take place. Our Lucknow friends count on the help received from the members of the different associations in this matter, and I hope that those members who are desirous of taking part in the Scientific Section should be requested to send a synopsis of the paper which they intend to read either to the undersigned at the above address or to the Secretary, Reception Committee, IX All-India Medical Conference, Lucknow, by the 15th of November. It should be noted that the paper read at the Scientific Section of the Conferece will be published in the official journal of the Indian Medical Association and cannot be published in any other paper without the sanction of the Journal Committee.

Owing to shortness of time it has not been possible to extend the invitation individually to members of the profession all over India. I am, therefore, approaching you for help in this connection and shall be obliged if you could give as much publicity regarding this Conference as possible through your local papers or otherwise so that a large number of delegates may attend the Conference to guide its deliberations and take part in the Scientific Section. The Delegation Fee has been fixed at Rs. 5.

The Reception Committee are making every effort to provide accommodation for the intending delegates in a suitable Bungalow at Lucknow and only the actual boarding expenses will be charged. Delegates who intend to attend the Conference are requested to communicate with Dr. T. R. Swarup, Secretary, Lucknow Medical Association, Lall Bagh Circus, Lucknow, for accommodation, etc. Further particulars will be supplied on request by the Reception Committee.

It is anticipated that the consideration of the Indian Medical Council

Bill, which has been introduced at the Legislative Assembly and referred to a Select Committee, will not be taken up at the special session at Delhi in November. It would therefore be all the more essential that the Lucknow Conference should pass resolutions regarding this Bill supporting the demands of the Indian Medical Association on the different clauses of the Bill and it would therefore be desirable that the Lucknow Conference should be attended by as many delegates as possible from the different provinces of India. It is hardly necessary for me to dilate on the importance of the Conference which besides focussing the attention on all the important problems concerning the welfare of the medical profession, affords an excellent opportunity of social intercourse between the different members of the medical profession in India.

Yours faithfully,

K. S. RAY,

Jt. Hon. Secretary,
Indian Medical Association

The All-India Medical Licentiates' Association.

(MADRAS BRANCH.)

A clinical meeting was held at the Lady Willingdon Medical School on the 31st October 1932 when Dr. U. D. Gopal Rau read a paper on "the Role of Vitamins in Diet." Dr. (Miss) H. Lazarus presided.

After the lecture was over, the pupils of the Lady Willingdon Medical School were exhorted to take part in the ensuing Annual Conference of the Association.

OBITUARY

The Union has to record with great sorrow the demise of two of its members.

Dr. Miss G. M. Thomas had been a member of the Union ever since its inception. She had been on the governing body for the last six years. Her regular and punctual attendance at both the governing body and clinical meetings of the Union was an object lesson to many of us of the high sense of devotion and loyalty that ought to actuate the members of any particular organization.

She was ailing for sometime past with a whitlow in the finger and when she thought that she had recovered from the illness, her keen sense of duty had prompted her to take up her practice which was fairly exacting.

An injury to a neighbouring finger, to the one that has just recovered, assumed a serious proportion in a very short time and the untimely sad end came on 14th November 1932. We offer our sincere condolence to Dr. Miss Jacob her sister.

Dr. M. D. Mariadoss, I.M.D., of Royapuram had an extensive practice on the North of Madras had been regular in his attendance at the meetings of the Union ever since he became a member in the year 1930. Though of a shy and retiring nature, his sweet manners and affable disposition endeered him to all those that came in close contact with him. His death on 30th October 1932 came all too sudden due to heart failure.

At the clinical meeting on the 21st instant the condolence resolution, touching the death of these two enthusiastic members, was put from the chair and carried unanimously, all the members present standing in solemn silence.

The secretaries were asked to communicate the resolutions to the members of the families of these two doctors.